



Transdisciplinary research program
13-Novembre

Lille, March 8, 2017

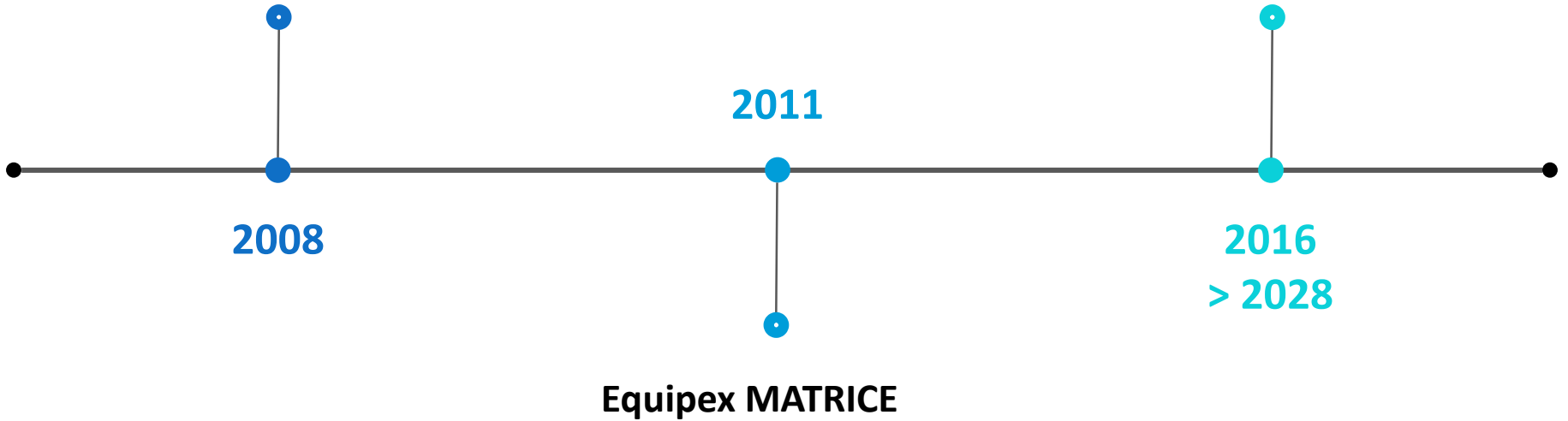




Context

Paris – Caen – New York
Memory & Memorialization
(PUF/FACE)

13-Novembre



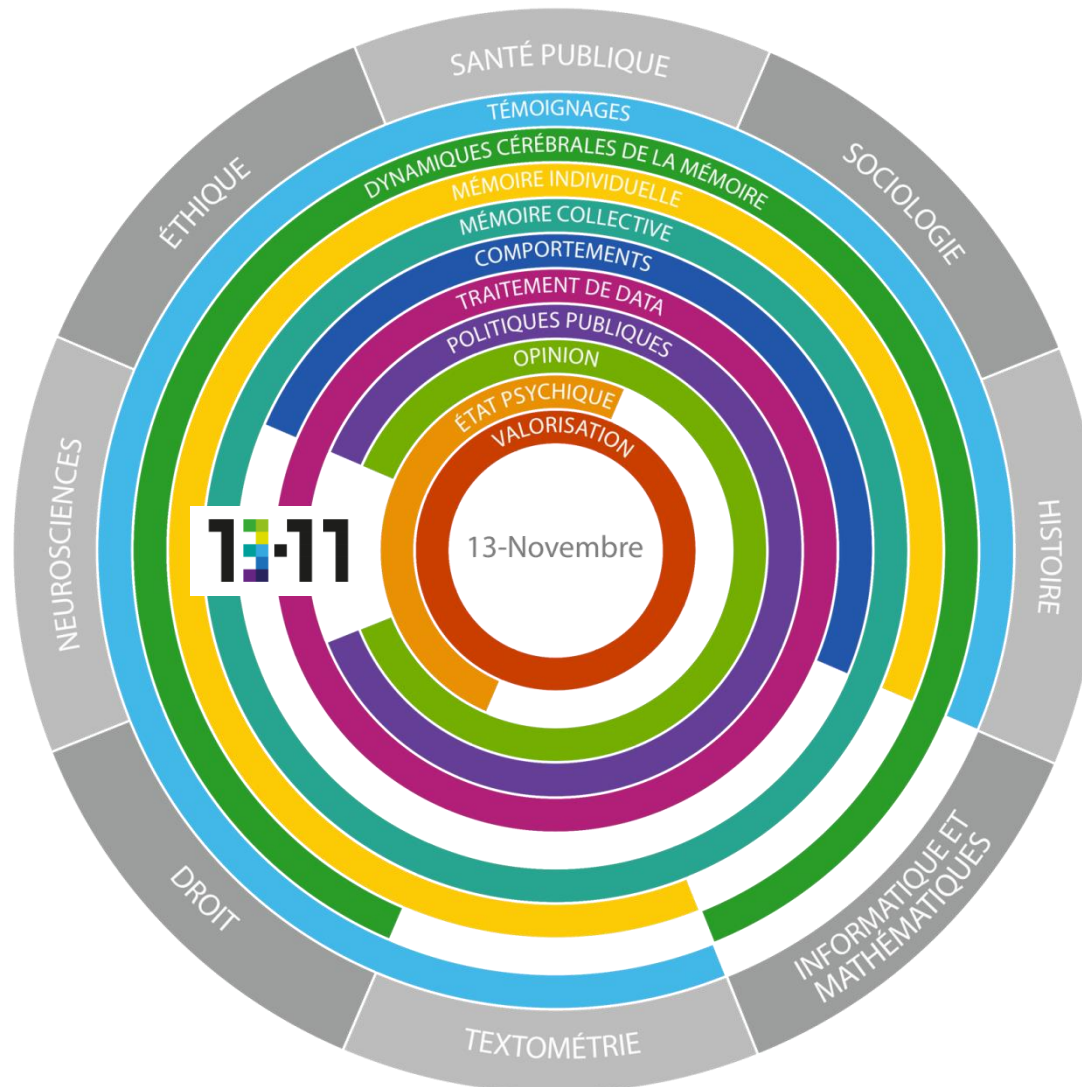


The program

- ❖ A 12-years transdisciplinary research program
- ❖ To study the construction and evolution of memory after the November 13, 2015 terrorist attacks in Paris
- ❖ Based on the collection and analysis of testimonies
- ❖ To understand the articulation between individual and collective memory

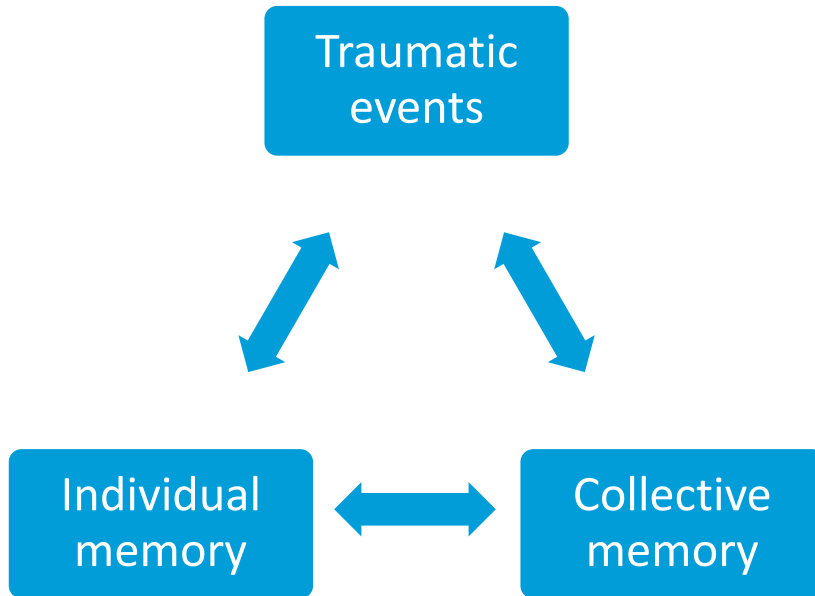


Transdisciplinarity





Research questions



- How does traumatic remembering evolve into individual memory and collective memory?
- How do great collective narratives feed individual memory?
- How does a traumatic event alter brain structures and functioning?
- Can we predict the development of post-traumatic stress and resilience through brain markers?
- What was the effective assistance to and care management for the wounded and what are the improvements proposed?
- What is the influence of modern media on the construction of individual memory and collective memory?
- *Etc.*



Programme
de recherche
transdisciplinaire

Etude 1000



Instituts
thématiques



Inserm

Institut national
de la santé et de la recherche médicale

hautes études
Sorbonne
arts et métiers

heSam

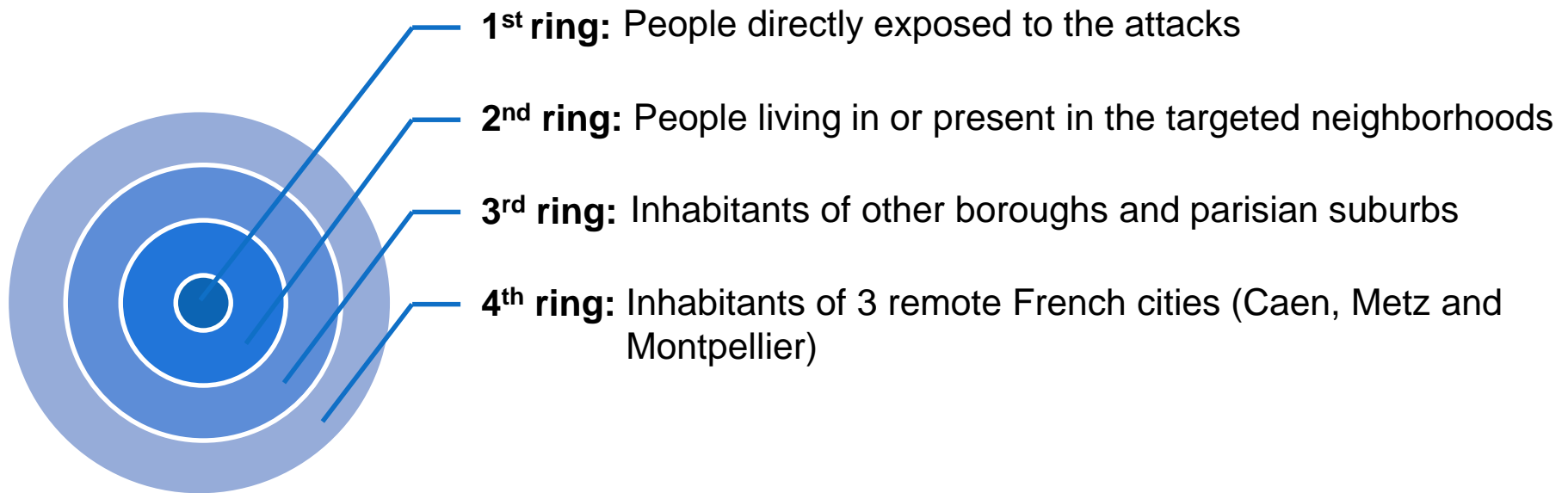
université





Main goal

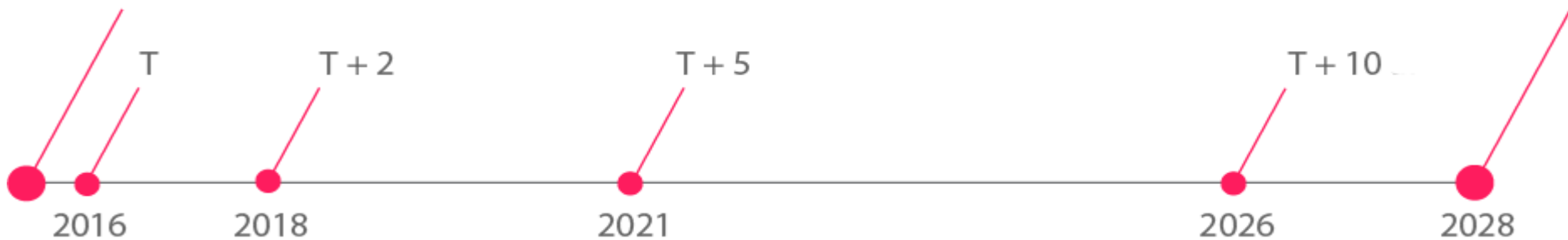
Collection and analysis of **1,000 testimonies** of people exposed to or concerned by the terrorist attacks





A longitudinal design

The cohort of 1,000 individuals will be filmed 4 times at preset intervals.



T = Testimonies



Individual interviews - content

ina

ecpa ▶ d

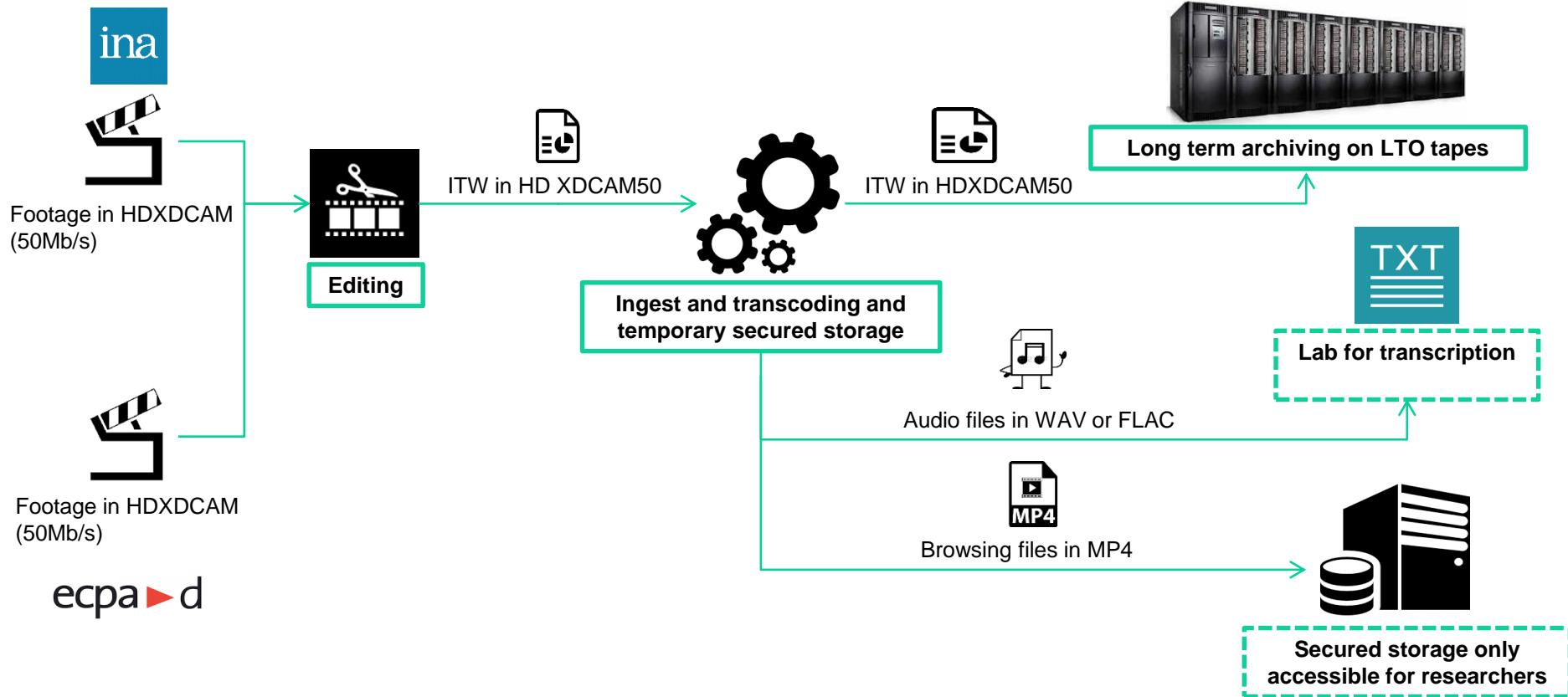
Filmed Interviews

- 3 open questions (about what happened; individual experience during the events; interpretation of the events) / semi-directive
- Emotional memory / directive with short answers

Off camera Interviews

- Sociological and biographical identification
- Memory of the event (conditions in which they learned about the event and the memory of the event itself)

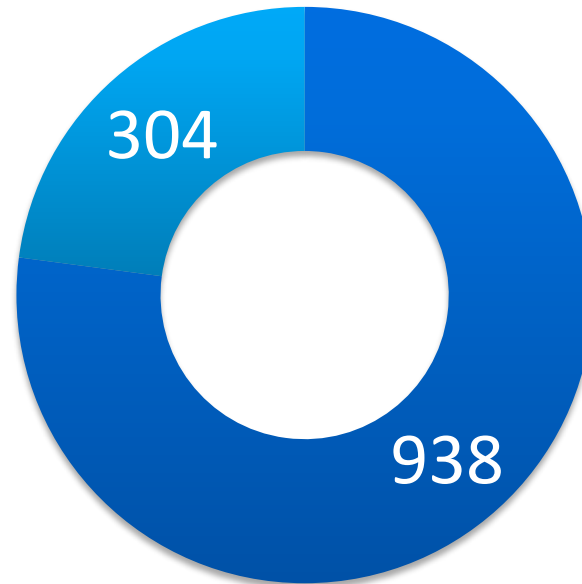
Individual interviews - archiving





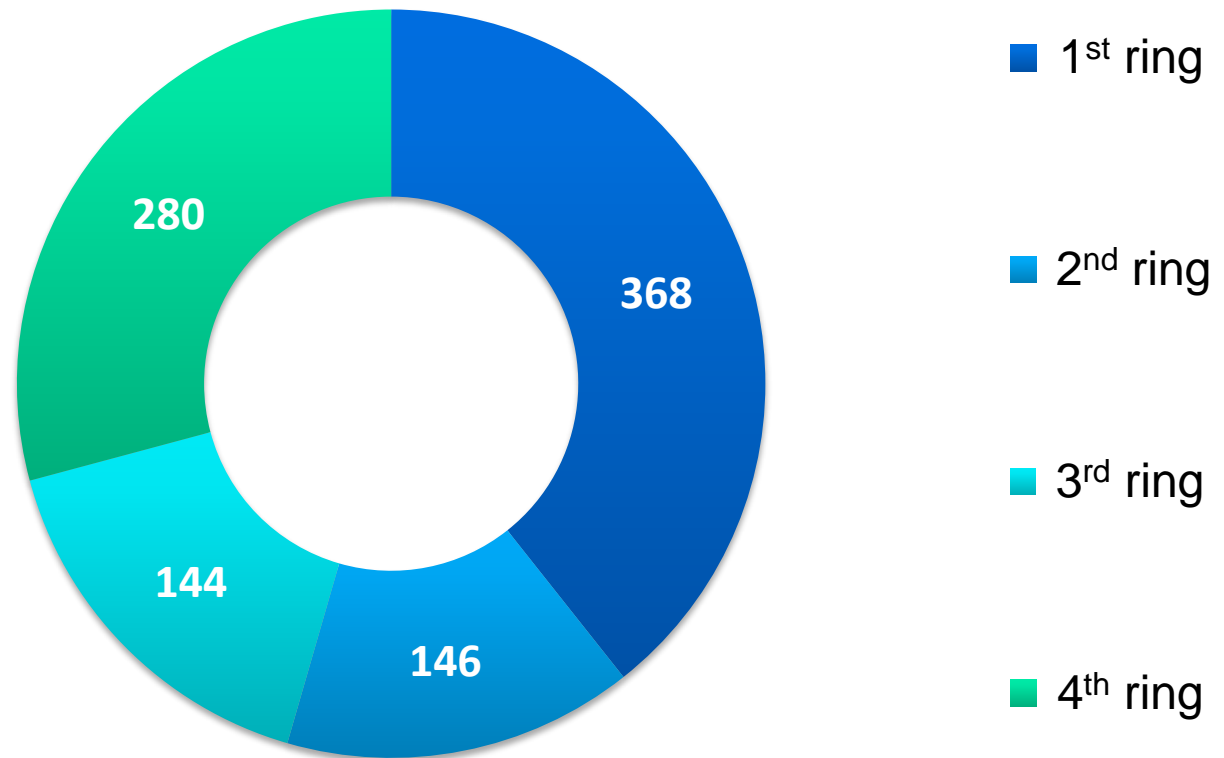
Some statistics (1)

1,242 people have been contacted
938 interviews have been realized



Some statistics (2)

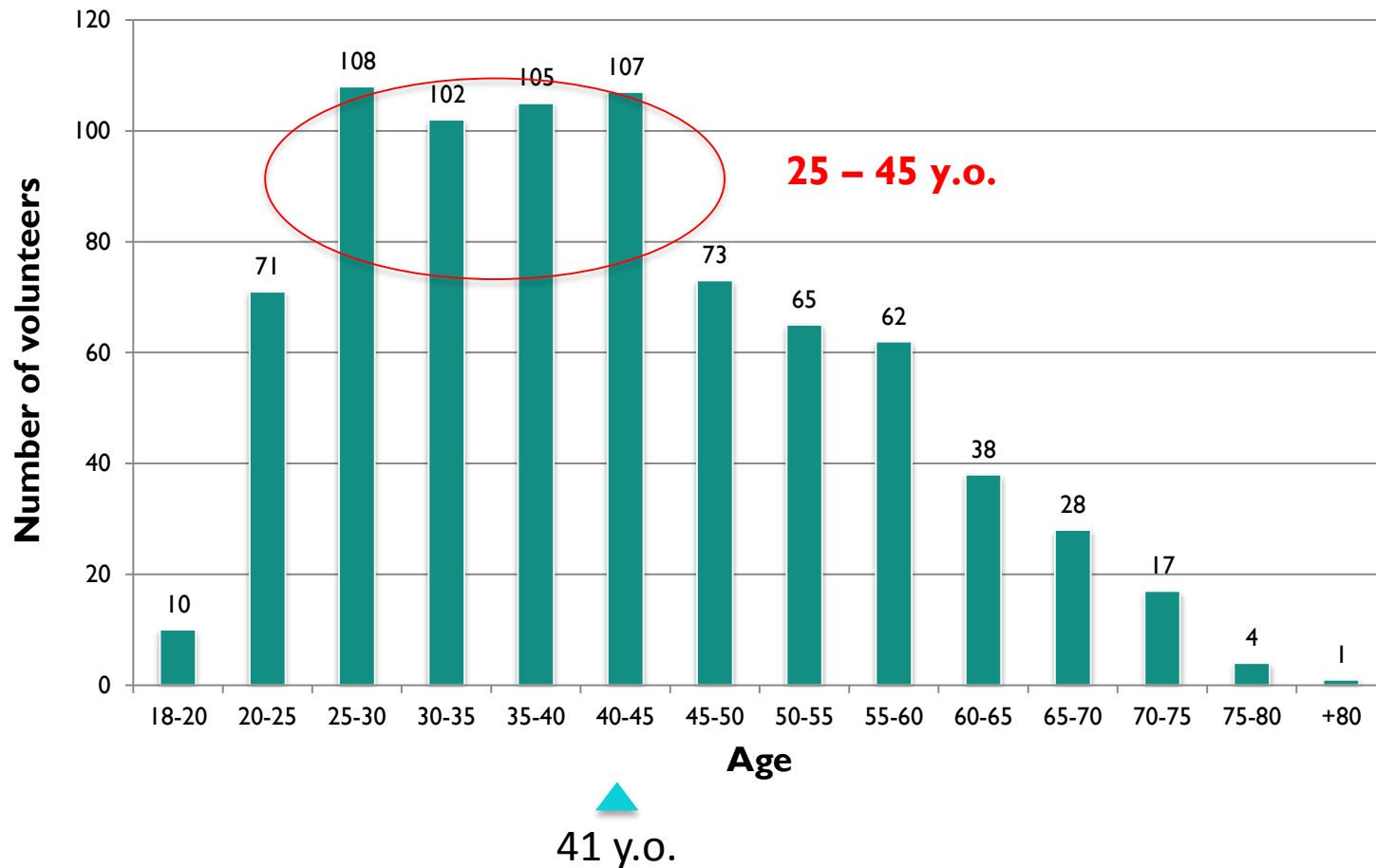
Distribution of volunteers by ring





Some statistics (3)

Distribution of volunteers by age class





Programme
de recherche
transdisciplinaire

Etude REMEMBER



Instituts
thématiques



Inserm

Institut national
de la santé et de la recherche médicale

hautes études
Sorbonne
arts et métiers

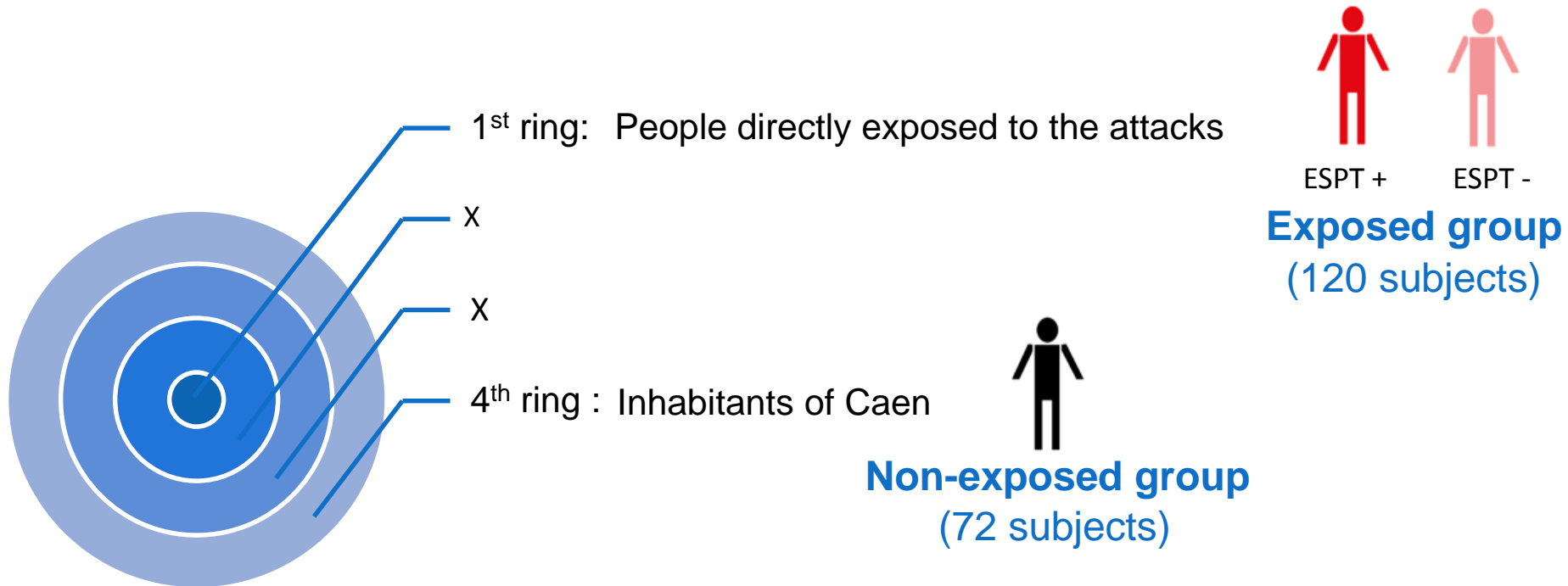
heSam

université



An ancillary study

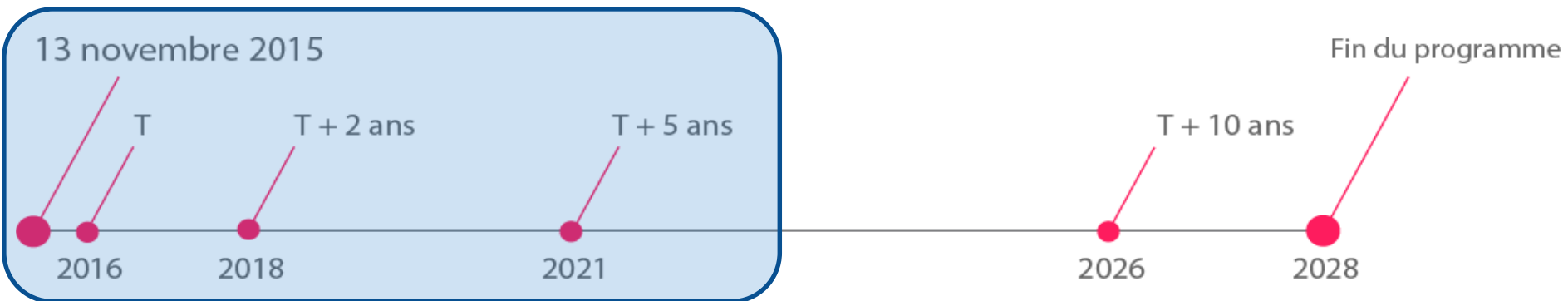
192 individuals sampled from the cohort of 1,000





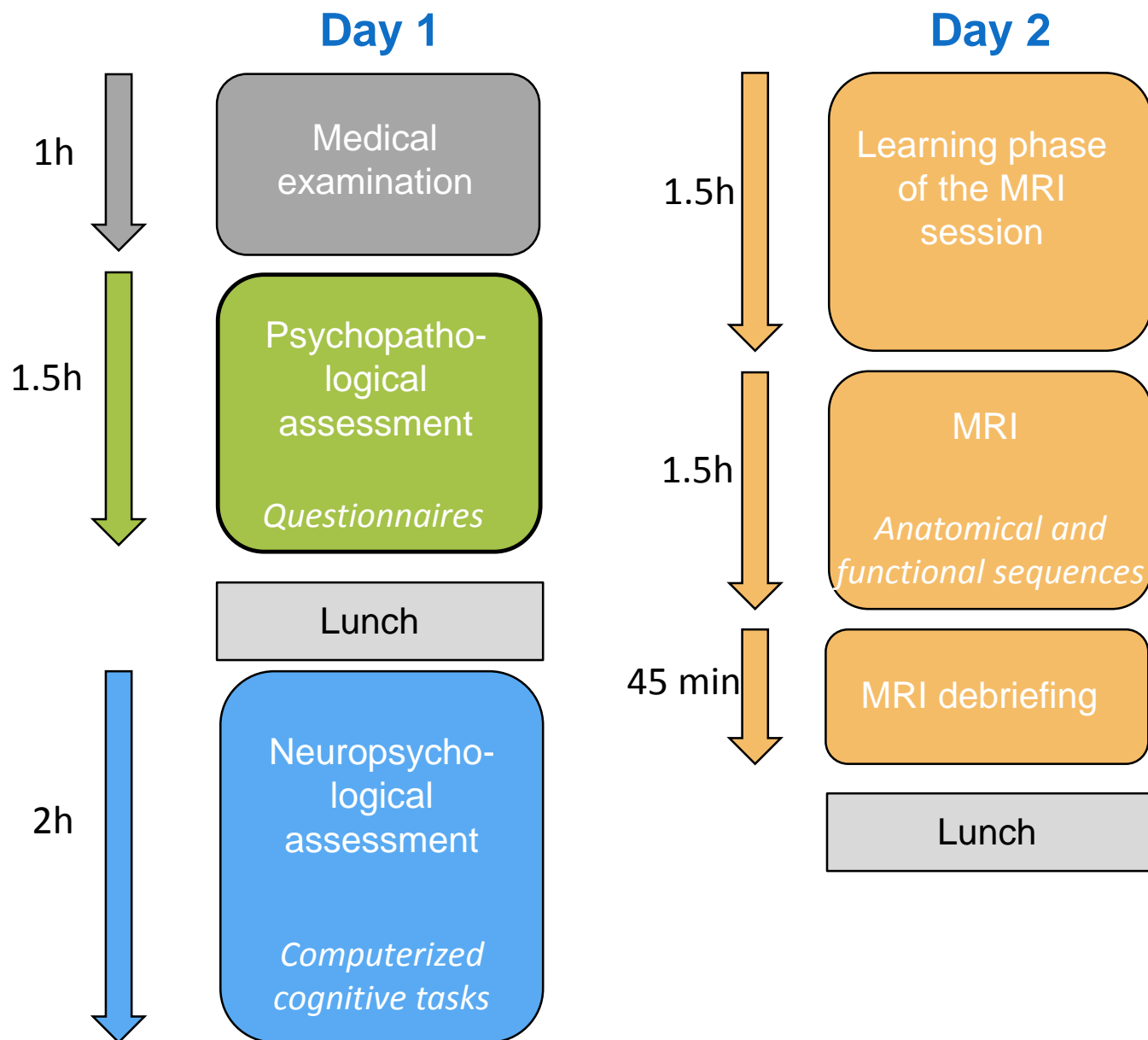
A longitudinal design

3 waves over 5 years





Organization of the stay





Progress report

	Non-exposed group	Exposed group
Expected number of subjects (with exploitable MRI)	72	120
Current number of subjects	86 (60 exploitable MRI)	94 (91 exploitable MRI)
Male / female ratio	21 men / 39 women	49 men / 42 women
Mean age \pm standard deviation	31.6 \pm 10 y.o.	36.7 \pm 7.5 y.o.

End of the inclusions scheduled for the end of March 2017.



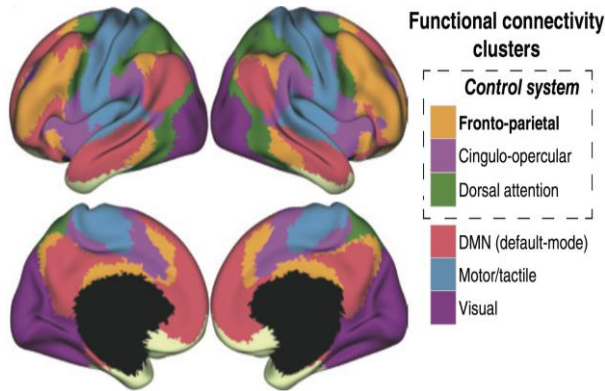
Intrusion and mental health



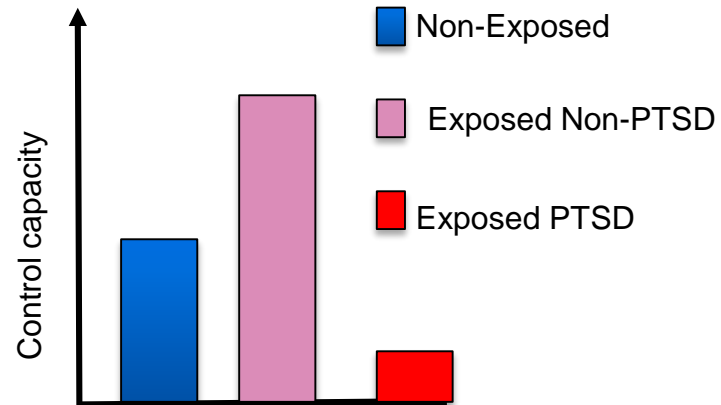
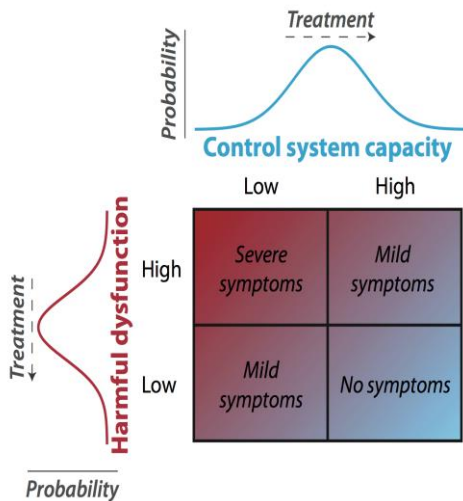
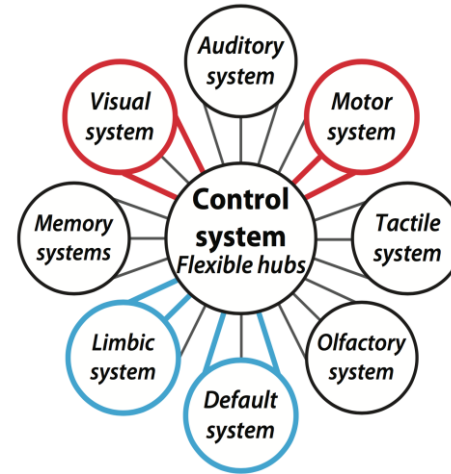
- ✓ Intrusion precipitate psychopathological symptoms and contribute to their maintenance
- ✓ Symptoms increase with sensory properties
- ✓ Distressing response coming with intrusion predicts symptom severities

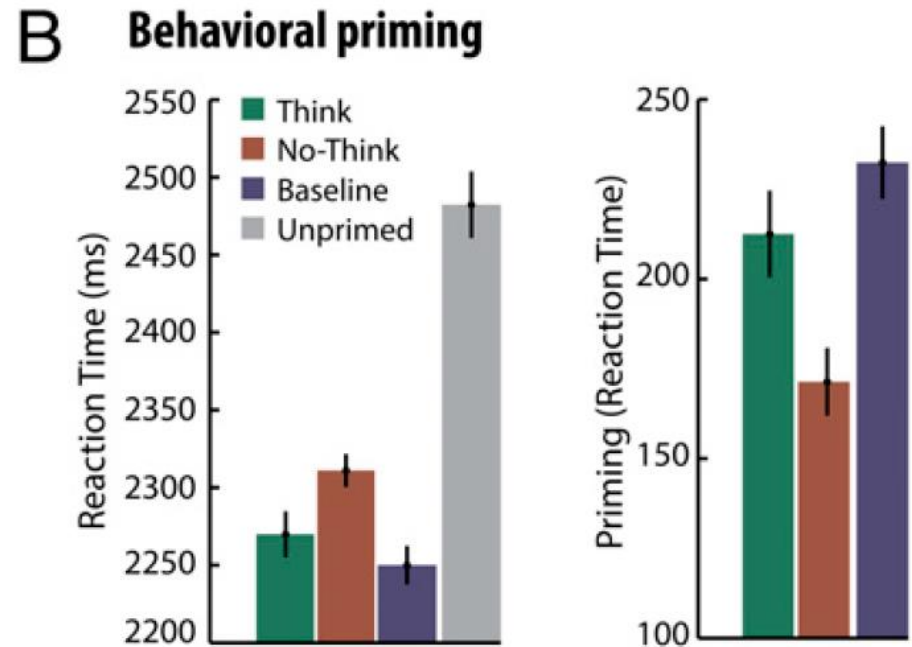
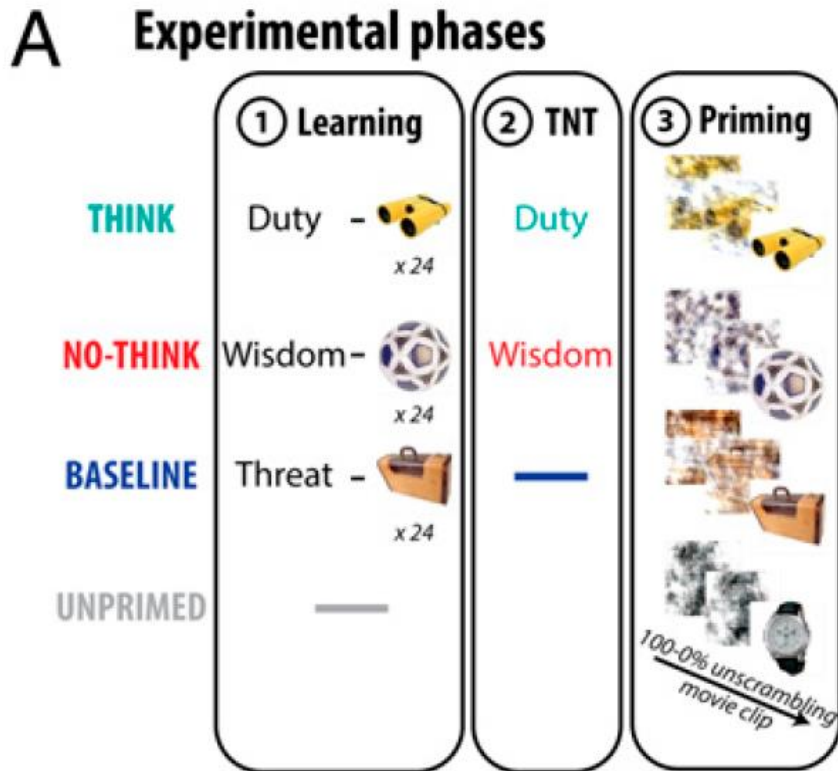
Brewin et al., 2010

Frontoparietal network and mental health



Cole et al., 2013/2014



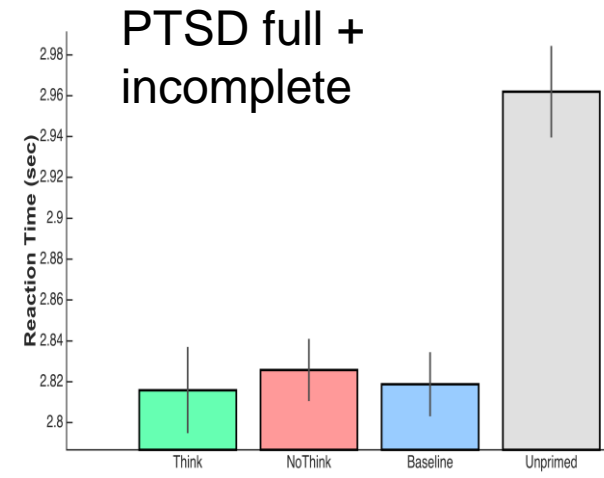
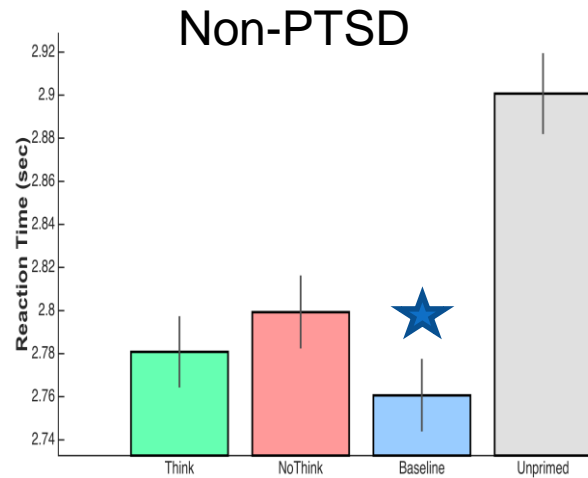
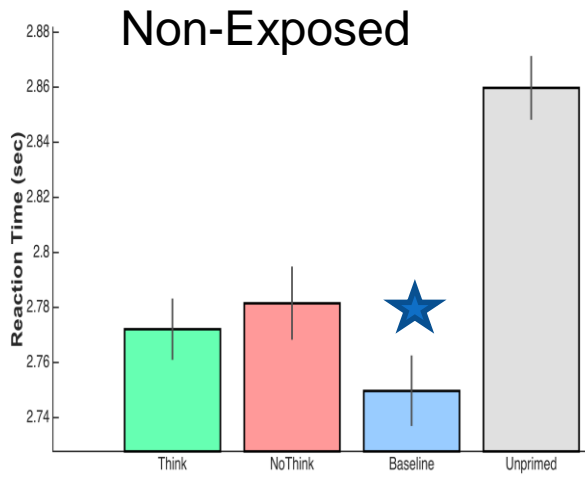


n = 24 subjects



MRI session - behavioral results

Priming reaction times





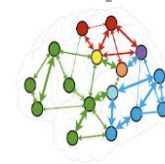
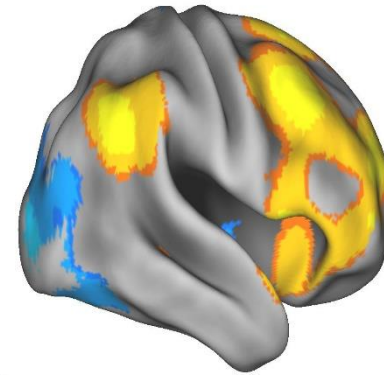
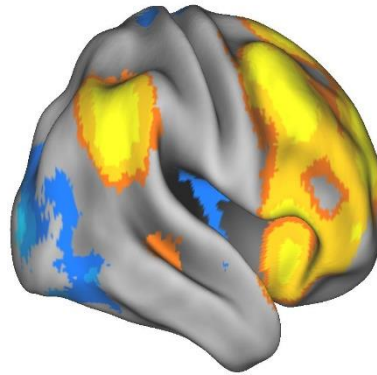
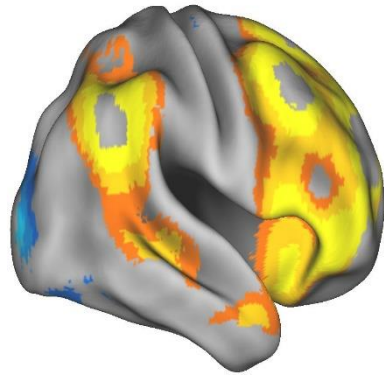
MRI session – memory control network

NoThink > Think

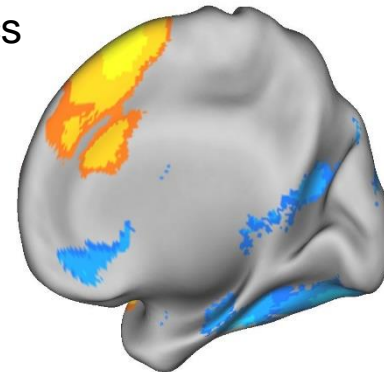
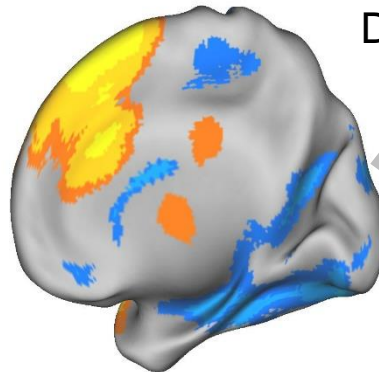
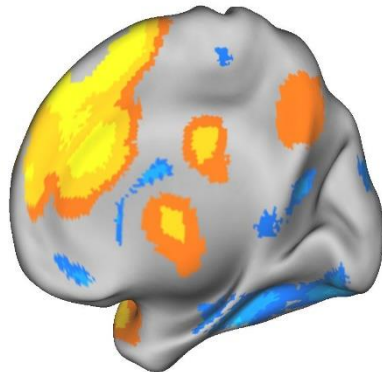
Non-Exposed

Non-PTSD

PTSD full + incomplete

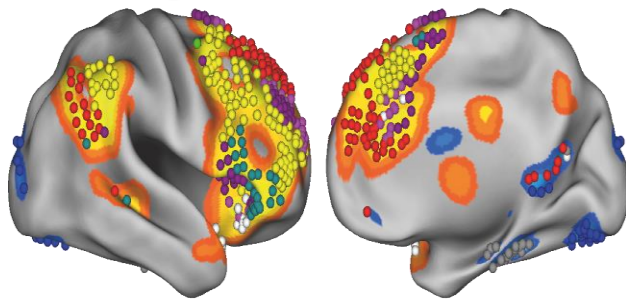


Dynamics



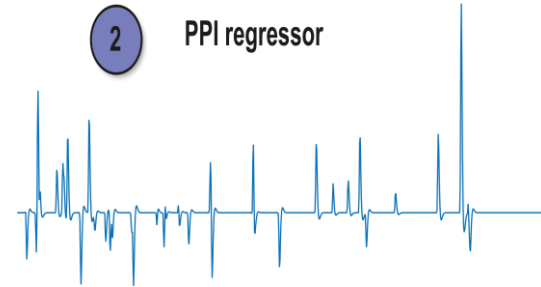
1-11 MRI session – frontoparietal network (1)

1 Sphere creation

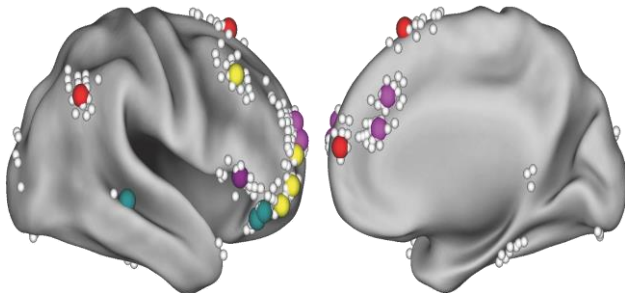


- Fronto-parietal control network (FPN)
- Default mode network (DMN)
- Salience network (SAL)
- Ventral attentional network (VAN)
- Cingulo-opercular control network (CON)
- Memory retrieval network (MR)
- Visual network (VIS)

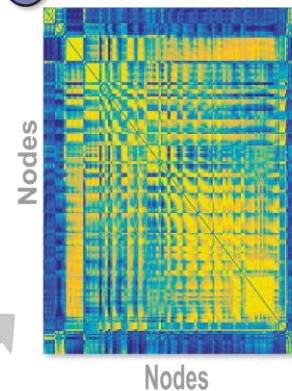
2 PPI regressor



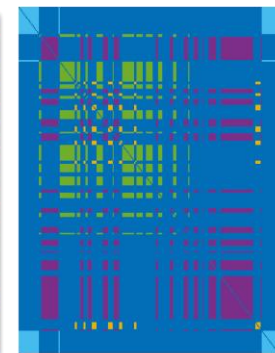
3 Neighbors selection



4 Connectivity matrix



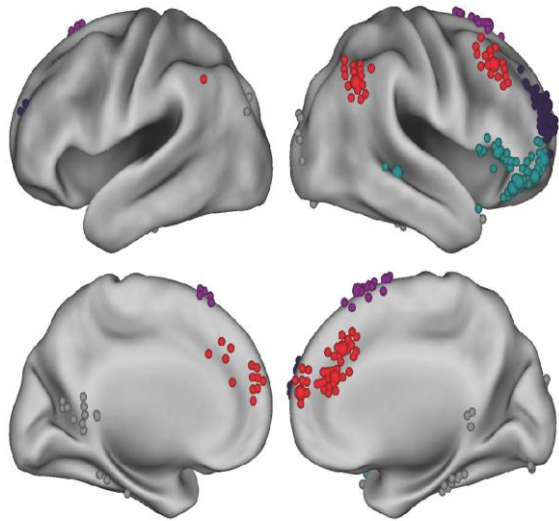
Community structure



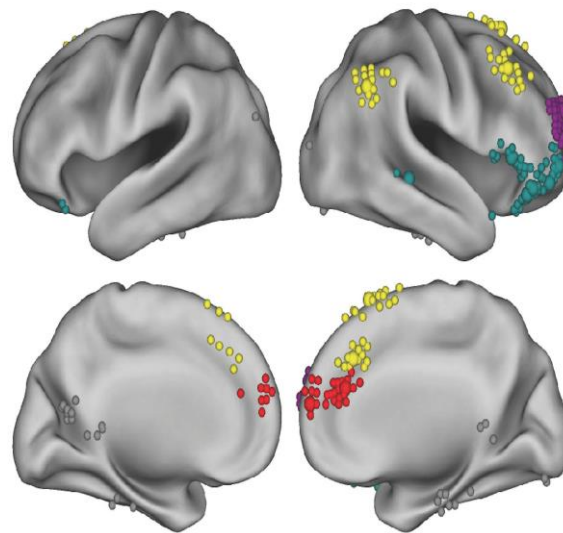


MRI session – frontoparietal network (2)

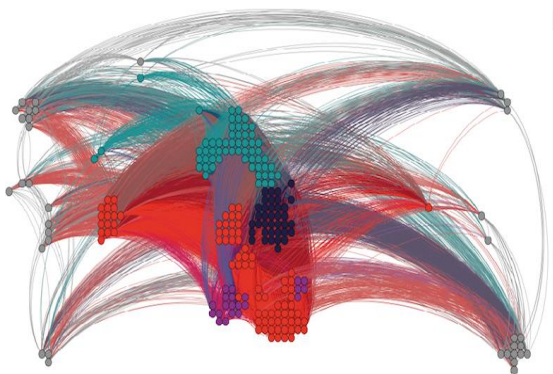
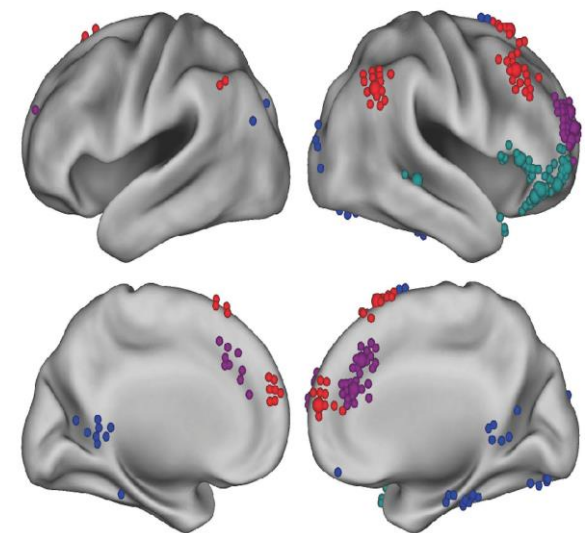
Non-Exposed



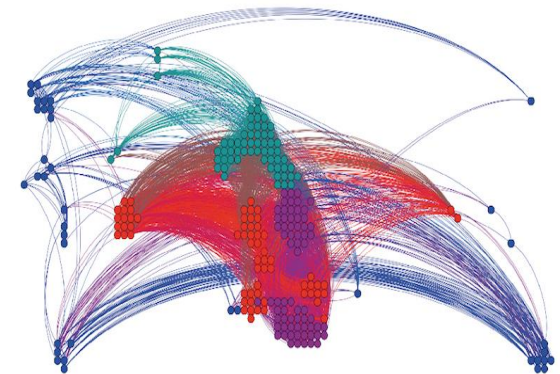
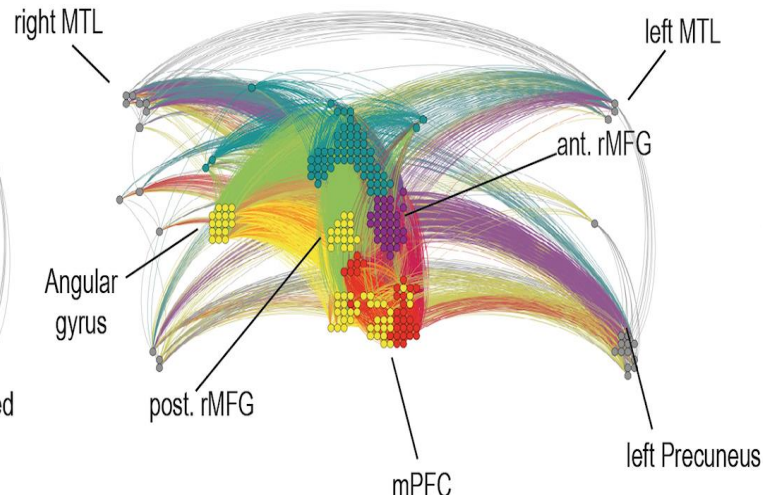
Exposed non PTSD



Exposed PTSD (full + incomplete)

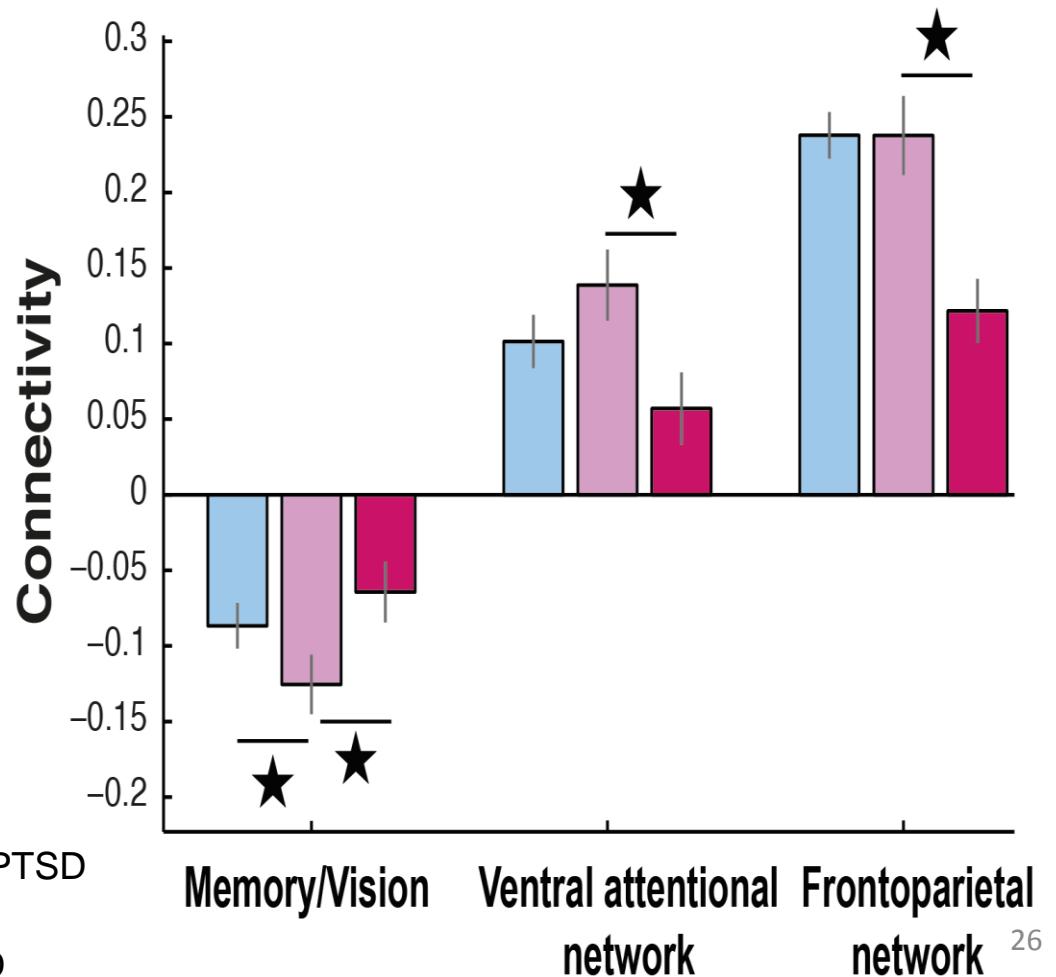
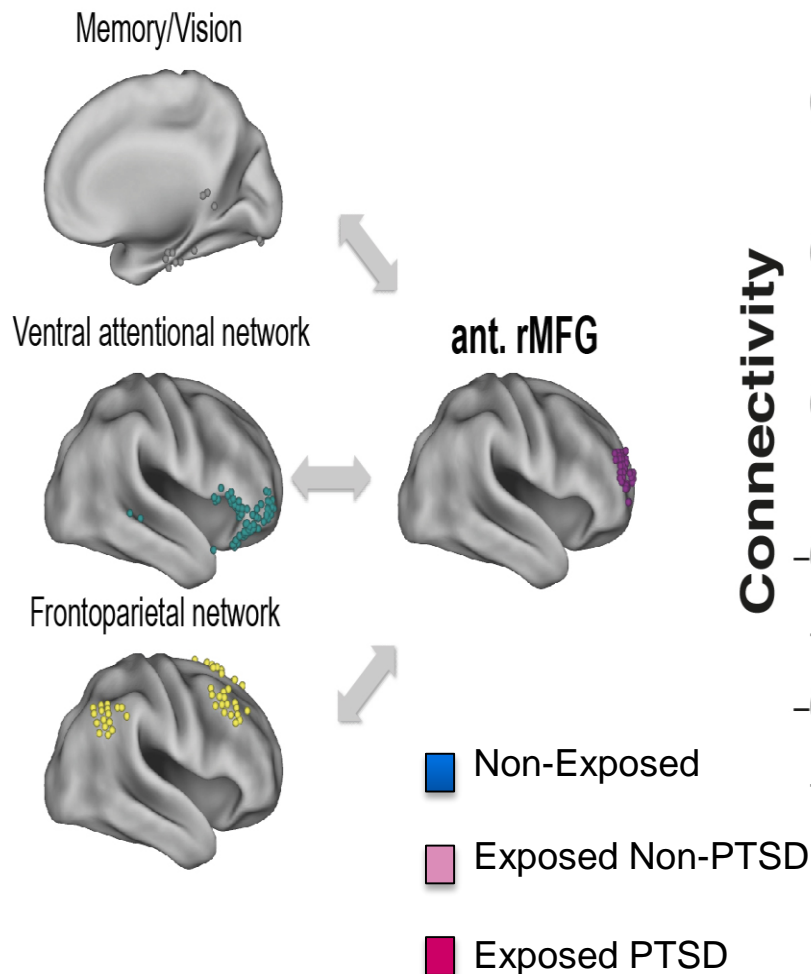


Connectivity matrix thresholded at $P < .005$ FDR corrected



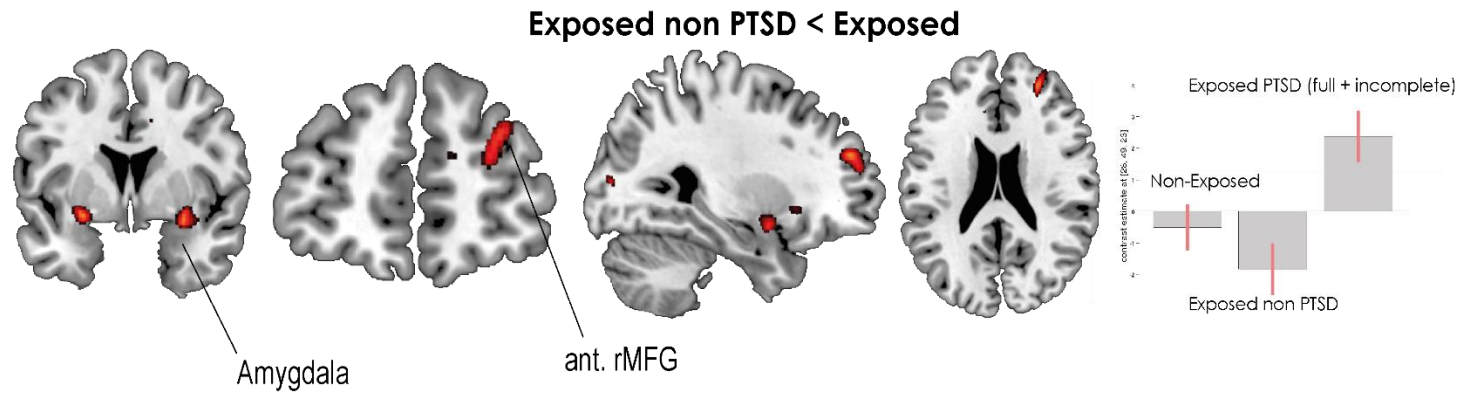
11-11 MRI session – frontoparietal network (3)

Right anterior MFG is a critical hub to predict symptom severities

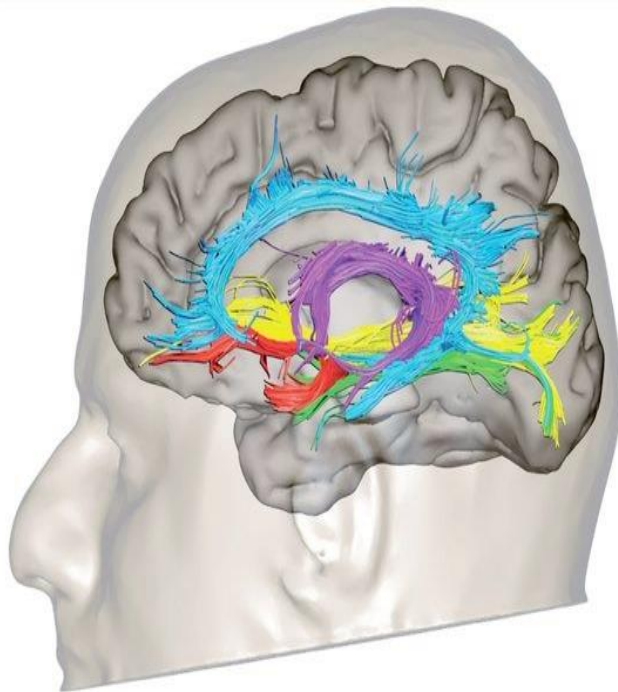


MRI session – DTI (1)

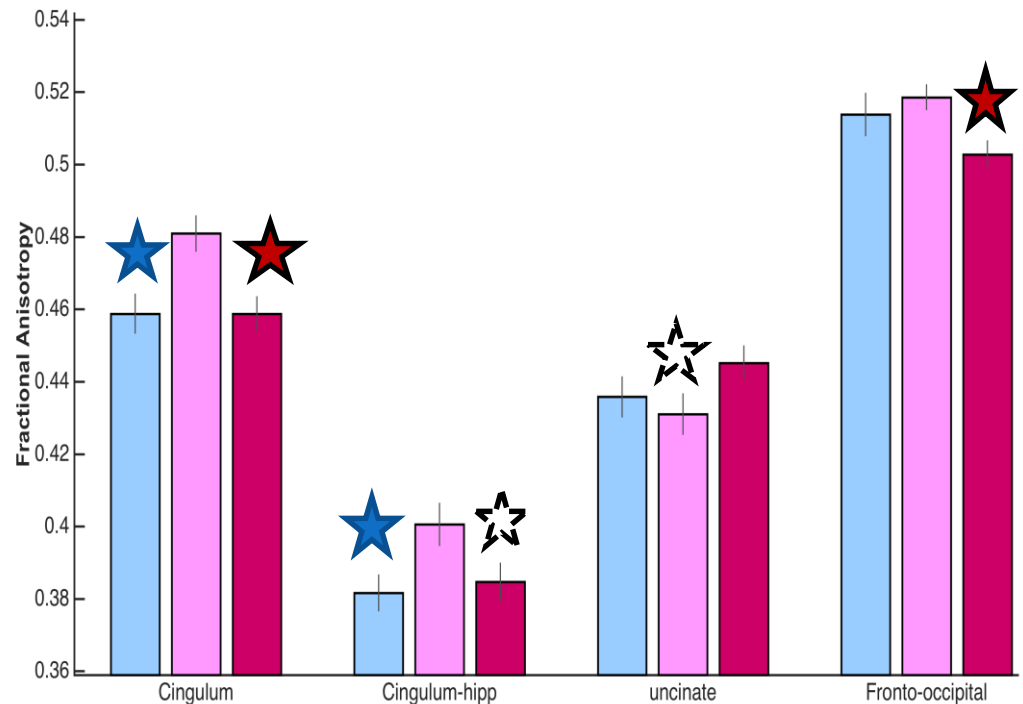
Track-Based Spatial Statistics



Fractional Anisotropy in main tracks



- Uncinate
- Inferior fronto-occipital
- Inferior longitudinal
- Fornix
- Cingulum





Programme
de recherche
transdisciplinaire

ESPA November 13



Instituts
thématiques



Inserm

Institut national
de la santé et de la recherche médicale

hautes études
Sorbonne
arts et métiers

heSam

université





ESPA – November 13



- ❖ Public health epidemiological investigation carried by Santé Publique France, in partnership with 13-11: *Etude Santé Publique post-Attentats (ESPA)*
- ❖ Study through Web questionnaires
- ❖ Public: victims , relatives, witnesses and first-aiders
- ❖ Objectives: assessment of psycho-traumatic impact; assessment of the frequency of use of Care Devices
- ❖ Goals:
 - to provide people with information on psychological trauma and existing management systems;
 - to provide decision makers with useful information on improving care devices



Programme
de recherche
transdisciplinaire

On memorisation and perception of 11/13 terrorist attacks

Crédoc – 13-11



Instituts
thématiques



Inserm

Institut national
de la santé et de la recherche médicale



Online and face-to-face surveys

- 2016 January : on line, 3000 people, one question about impact of terrorist attacks on French society
- 2016 June: face to face, 2000 people, 11 questions about perception and memorisation of this traumatic event (report given on 2017 January)
- 2017 January: on line, 3000 people, one question about impact of terrorist attacks and one about memorisation of different terrorist attacks since 2000

Program stakeholders

Administrative partner

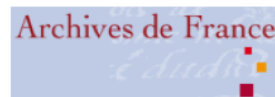


Scientific partners





École Pratique
des Hautes Études





Laboratories involved



- ❑ **Sociologie** – UMR 8070 Cerlis - Paris (Centre de recherche sur les liens sociaux)



- ❑ **Sociologie et Science politique** – UMR 8209 CESSP – Paris (Centre Européen de Sociologie et de Science Politique)



- ❑ **Droit** – UMR 6262 Iode – Rennes 1 (Institut de l'Ouest – Droit et Europe)

U1077



- ❑ **Neuropsychologie** – U 1077 - Caen (Neuropsychologie et neuroanatomie fonctionnelle de la mémoire humaine)

- ❑ **Neuropsychiatrie** – U 1061 – Montpellier



- ❑ **Sciences de la communication** – EA 3476 – Lorraine (Centre de recherche sur les médiations)



- ❑ **Textométrie** – UMR 7320 – Sophia-Antipolis (Bases, Corpus, Langages)



- ❑ **Textométrie** – UMR 5317 – Lyon (Institut d'histoire des représentations et des idées dans les modernités)



- ❑ **Sociologie et sciences politiques** – UMR 7220 – Paris Ouest (Institut des Sciences Sociales du Politique)





For a paradigm shift in memory studies

- Dialectics
- Transdisciplinarity
- Mathematical Modelization
- Complexity



For more information:

www.memoire13novembre.fr